



NUCLEAR REGULATORY COMMISSION

[NRC-2021-0213]

Target Fragilities for Equipment Vulnerable to High Energy Arcing Faults

AGENCY: Nuclear Regulatory Commission.

ACTION: Draft research information letter; request for comment.

SUMMARY: The U.S. Nuclear Regulatory Commission (NRC) is issuing for public comment draft research information letter, "Target Fragilities for Equipment Vulnerable to High Energy Arcing Faults, Draft Report for Comment."

DATES: Submit comments by **[INSERT DATE 30 DAYS AFTER PUBLICATION IN THE *FEDERAL REGISTER*]**. Comments received after this date will be considered if it is practical to do so, but the Commission is able to ensure consideration only for comments received on or before this date.

ADDRESSES: You may submit comments by any of the following methods; however, the NRC encourages electronic comment submission through the **Federal Rulemaking Website**:

- **Federal Rulemaking Website:** Go to <https://www.regulations.gov> and search for Docket ID **NRC-2021-0213**. Address questions about Docket IDs in Regulations.gov to Stacy Schumann; telephone: 301-415-0624; email: Stacy.Schumann@nrc.gov. For technical questions, contact the individual listed in the **FOR FURTHER INFORMATION CONTACT** section of this document.

- **Mail comments to:** Office of Administration, Mail Stop: TWFN-7-A60M, U.S. Nuclear Regulatory Commission, Washington, DC 20555-0001, ATTN: Program Management, Announcements and Editing Staff.

For additional direction on obtaining information and submitting comments, see "Obtaining Information and Submitting Comments" in the **SUPPLEMENTARY INFORMATION** section of this document.

FOR FURTHER INFORMATION CONTACT: Gabriel J. Taylor, Office of Nuclear Regulatory Research, U.S. Nuclear Regulatory Commission, Washington, DC 20555-0001, telephone: 301-415-0781, email: Gabriel.Taylor@nrc.gov.

SUPPLEMENTARY INFORMATION:

I. Obtaining Information and Submitting Comments

A. Obtaining Information

Please refer to Docket ID **NRC-2021-0213** when contacting the NRC about the availability of information for this action. You may obtain publicly available information related to this action by any of the following methods:

- **Federal Rulemaking Website:** Go to <https://www.regulations.gov> and search for Docket ID **NRC-2021-0213**.

- **NRC's Agencywide Documents Access and Management System (ADAMS):** You may obtain publicly available documents online in the ADAMS Public Documents collection at <https://www.nrc.gov/reading-rm/adams.html>. To begin the search, select "Begin Web-based ADAMS Search." For problems with ADAMS, please contact the NRC's Public Document Room (PDR) reference staff at 1-800-397-4209, 301-415-4737, or by email to PDR.Resource@nrc.gov. The draft Research Information Report "Target Fragilities for Equipment Vulnerable to High Energy Arcing Faults, Draft Report for Comment" is available in ADAMS under Accession No. ML21326A010.

- **NRC's PDR:** You may examine and purchase copies of public documents, by appointment, at the NRC's PDR, Room P1 B35, One White Flint North, 11555 Rockville Pike, Rockville, Maryland 20852. To make an appointment to visit the PDR, please send an email to PDR.Resource@nrc.gov or call 1-800-397-4209 or 301-415-4737, between 8:00 a.m. and 4:00 p.m. (ET), Monday through Friday, except Federal holidays.

B. Submitting Comments

The NRC encourages electronic comment submission through the **Federal Rulemaking Website** (<https://www.regulations.gov>). Please include Docket ID **NRC-2021-0213** in your comment submission.

The NRC cautions you not to include identifying or contact information that you do not want to be publicly disclosed in your comment submission. The NRC will post all comment submissions at <https://www.regulations.gov> as well as enter the comment submissions into ADAMS. The NRC does not routinely edit comment submissions to remove identifying or contact information.

If you are requesting or aggregating comments from other persons for submission to the NRC, then you should inform those persons not to include identifying or contact information that they do not want to be publicly disclosed in their comment submission. Your request should state that the NRC does not routinely edit comment submissions to remove such information before making the comment submissions available to the public or entering the comment into ADAMS.

II. Discussion

The NRC Office of Nuclear Regulatory Research (RES) is advancing the understanding and state-of-practice for modeling High Energy Arcing Faults (HEAF) in fire Probabilistic Risk Assessment (PRA). One important aspect of this research is to understand the HEAF effects on equipment important for nuclear safety. The high intensity and short duration of a HEAF exposure causes substantially different heat transfer conditions than a classical thermal fire case. As such, there was a need to develop HEAF specific damage and ignition limits to support advancements. The NRC collaborated with the Electric Power Research Institute (EPRI) to develop technical consensus positions on the damage and ignition limits of equipment important to plant safety and commonly evaluated in fire PRAs. The target fragility limits are based on operating experience, small and large scale testing, lessons learned from a Phenomena Identification and Ranking Table exercise, results from analytical tools, and judgement.

The draft research information letter presents the NRC-RES/EPRI working groups consensus on the damage and ignition limits of nuclear facility targets that are important to safety. It includes specific energy fluence levels that cause damage to components such as electrical cables, cable protective features, and non-segregated phase bus ducts. The conclusions from this report will be used in conjunction with HEAF hazard estimates to develop zones of influence to support improvements to fire PRA methods.

Dated: November 24, 2021.

For the Nuclear Regulatory Commission.

Mark H. Salley,
Chief, Fire and External Hazards Analysis Branch,
Division of Risk Analysis,
Office of Nuclear Regulatory Research.

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